

AMENDMENTS TO THE CLAIMS

Applicant submits below a complete listing of the current claims, including marked-up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing. This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently amended) A method for transmitting digital messages, on execution of an instruction sequence by ~~[[the]]~~ a microprocessor, through output terminals of a monitoring circuit integrated ~~[[to]]~~ on the microprocessor, at least one of said digital messages being representative of characteristic data stored by the monitoring circuit on detection of a jump in the execution of ~~[[the]]~~ an instruction sequence from an initial instruction to a destination instruction different from ~~[[the]]~~ an instruction following the initial instruction in the instruction sequence, comprising, for the transmission of ~~[[a]]~~ the at least one digital message, the steps of:

determining whether the jump is associated with a jump instruction of the instruction sequence for which data representative of ~~[[the]]~~ a destination instruction address of the jump is explicitly indicated in the instruction;

if yes, assigning a first value to a first set of bits of the at least one digital message, and if not, assigning a second value to the first set of bits;

if the first set of bits is at the second value, providing an additional field comprising assigning to a second set of bits of the at least one digital message and assigning to the second set of bits a third value identifying the jump from among several types of jumps; and

transmitting the at least one digital message.

2. (Currently amended) The method of claim 1, further comprising the step of assigning to a third set of bits of the at least one digital message a value corresponding to ~~[[the]]~~ a number of instructions executed by the microprocessor since ~~[[the]]~~ a last executed instruction of the instruction sequence for which ~~corresponding to~~ a digital message associated with a jump was transmitted.

3. (Previously Presented) The method of claim 1, further comprising the step of, if the first set of bits is at the second value, assigning to a fourth set of bits of the digital message a value representative of the address of the destination instruction.

4. (Currently amended) The method of claim 1, in which a jump type corresponds to a jump resulting from a jump instruction of the instruction sequence containing ~~[[the]]~~ a reference of a register in which are stored data representative of the destination instruction address.

5. (Currently amended) The method of claim 1, in which a jump type corresponds to a jump forced by the microprocessor, the destination instruction corresponding to an instruction comprising ~~[[of]]~~ a series of specific instructions which are different from instructions of ~~does not belong to~~ the instruction sequence-series.

6. (Previously Presented) The method of claim 1, in which a jump type corresponds to a jump forced by the microprocessor, the destination instruction being an instruction of the instruction sequence.

7. (Currently amended) A device for transmitting digital messages between a monitoring circuit integrated on a microprocessor and an analysis tool via output terminals comprising:

means of detection of a jump on execution of an instruction sequence by the microprocessor;

means for storing data characteristic of the detected jump;

means for determining a digital message based on the stored characteristic data, the digital message comprising a first set of bits set to a first value if the jump is associated with a jump instruction of the instruction sequence for which data representative of ~~[[the]]~~ a destination instruction address of the jump are explicitly indicated in the instruction, and set to a second value in the opposite case; and

means for transmitting the determined digital message;

wherein, when the first set of bits is set to the second value, the determination means is capable of ~~comprising~~ providing an additional field in the digital message comprising a second set of bits ~~in the digital message, with the second set of bits~~ set to a third value identifying the jump from among several jump types.

8. (New) A method for transmitting digital messages on execution of an instruction sequence by a microprocessor, the method comprising:

detecting a jump in the execution of the instruction sequence from an initial instruction to a jump destination instruction, wherein the jump destination instruction is different from an instruction following the initial instruction in the instruction sequence;

if the jump is implicit, providing an additional field in at least one digital message transmitted on the execution of the instruction sequence by the microprocessor, wherein the additional field includes a value identifying a type of the implicit jump; and

transmitting the at least one digital message.

9. (New) The method of claim 8 further comprising:

determining whether the jump is associated with a jump instruction of the instruction sequence explicitly indicating an address of the jump destination instruction;

if it is determined that the jump instruction explicitly indicates the address of the jump destination instruction, assigning a first value to a first set of bits of the at least one digital message transmitted; and

if it is determined that the jump instruction does not explicitly indicate the address of the jump destination instruction:

assigning a second value to the first set of bits; and

assigning to the additional field comprising a second set of bits a third value identifying the type of the implicit jump.

10. (New) The method of claim 8, wherein the at least one digital message is transmitted through output terminals of a monitoring circuit integrated on the microprocessor.

11. (New) A device for transmitting digital messages to monitor operation of a microprocessor, the device comprising:

a monitoring circuit integrated on a microprocessor for:

detecting, on execution of an instruction sequence by the microprocessor, a jump from an initial instruction to a jump destination instruction, wherein the jump destination instruction is different from an instruction following the initial instruction in the instruction sequence; and

if the jump is implicit, providing an additional field in at least one digital message transmitted on the execution of the instruction sequence by the microprocessor, wherein the additional field includes a value identifying a type of the implicit jump;

an analysis tool to reconstitute the instruction sequence based on the at least one digital message; and

at least one monitoring terminal to provide the at least one digital message from the monitoring circuit to the analysis tool.